N.A.C.A. BULLETIN

In Two Sections

Section One

RESEARCH—THE KEY TO IMPROVED INDUSTRIAL ACCOUNTING
by RAYMOND P. MARPLE 531

DEPRECIATION ACCOUNTING
by EDWIN W. HART 540

TEAMWORK—ACCOUNTING AND MANAGEMENT
by KENNETH H. BERGSTROM 550

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EDITORIAL DEPARTMENT NOTE

In order that N. A. C. A. members may be informed of the extent and progress of the research activities of the Association under the sponsorship and guidance of the Committee on Research, there is included as the first article in this issue that portion of a talk presented by Dr. Marple at the Business Week Forum in New York in September which relates to current N. A. C. A. activity in this field.

RAYMOND P. MARPLE, the author of this article, is Assistant Secretary of N. A. C. A., in charge of Technical Service. He has been actively associated with the work of the Association since joining the Headquarters staff in 1934 and has worked closely with the Committee on Research since its formation somewhat over a year ago.

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Never has there been a greater need for clear thinking and sound judgment in the area of depreciation accounting than at present. Varying practice in accounting for the tax amortization of emergency facilities, proposals that assets which have been fully amortized should be reinstated on the books and subjected to future depreciation, a new Treasury ruling on the use of the diminishing value method for tax purposes, and various suggestions for allowing higher depreciation in the early life of an asset for tax purposes have tended to emphasize the need for getting back to fundamentals and considering the fundamental purpose of depreciation accounting—the allotment to years of their useful lives of the costs of long-life assets. The second article in this issue of the *Bulletin* is commended to you as a good illustration of the type of clear thinking which is most needed today.

EDWIN W. HART, the author of this article, has been in public accounting practice since 1928, and has had his own consulting practice in Philadelphia since 1936. A Pennsylvania C.P.A., he is a Past President of the Philadelphia Chapter and is currently serving as a member of the National Board of the Association.

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The *Bulletin* of August 15, 1946 carried an article pointing out that cost accountants could do a great deal more than they have done to assist management. Our third article this month is a direct follow-up of this idea and shows the results that can be accomplished by persistent selling efforts of the cost accountant. It is a testimony to the real purpose of cost accounting.

KENNETH H. BERGSTROM, the author of this article, has had wide experience in both public and private accounting. He is an active member of Worcester Chapter, serving at present as its First Vice President.

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JANUARY 2, 1947

RESEARCH—THE KEY TO IMPROVED INDUSTRIAL ACCOUNTING

by RAYMOND P. MARPLE, Assistant Secretary,
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(Excerpts from a talk given at the Business Week Forum in New York City, September 30, 1946.)

AS A preface to my remarks on the present research work of the Association, I shall summarize briefly the part which research has played in the activities of the National Association of Cost Acccountants since its founding in 1919. In the original statement of the objectives of the Association, research in cost accounting was emphasized, and almost from the beginning there has been a research department connected with the National Headquarters of the Association. Throughout the years the Association, which functions through National Directors in charge of activities or functions—such as publications, membership, meetings, etc.—has had a National Director in charge of Research.

The research work of the National Headquarters, under the leadership of Directors in charge of Research, has been varied. Much of it has been conducted as a member service in response to inquiries with reference to current practice in handling specific accounting, and often nonaccounting problems. In addition, we have followed the practice, through what has come to be called our "question and answer service," of conducting surveys among members, either to get a composite of opinions on a member's problem or to obtain from a group of members a sample of current practice in a specified area. Over 1500 such question and answer surveys have been conducted.

Formal research studies were started in the early 30's. Practically all of them have dealt with current practice in specific areas, such as accounting for raw materials, accounting for payroll taxes, applying overhead and calculating normal capacity, the place of internal auditing in industrial companies, accounting for depreciation, etc.

A little over a year ago the National Board of N. A. C. A., acting on the recommendation of Mr. George Ellis, then National Director in charge of Research, authorized the appointment by

the President of a Committee on Research. At the same time steps were taken to enlarge the research staff at National Headquarters. During the past year three meetings of the Committee have been held, policies and plans have been formulated, and a start made on a long-term research program which should make an important contribution to industrial accounting in this country. Professor Thomas H. Sanders of Harvard served as Chairman of the Committee until last spring, when pressure of academic duties made necessary the curtailment of outside activities. Since that time, Clinton W. Bennett, Partner of Cooley & Marvin of Boston, has served as Committee Chairman.

Types of Research Studies

As an illustration of the possibilities in industrial accounting research, particularly in the field of cost accounting, I should like to describe briefly three types of research studies which have been, or are now being, carried on by the N. A. C. A. staff under the direction of the Association's Committee on Research, and to illustrate each type by reference to specific projects.

The three types of research studies with which we have had experience to date might be described as—

1. Analytical studies;
2. Current practice studies; and
3. Factual studies of current problems.

Undoubtedly studies of other types will be undertaken as our research work progresses, and in some cases individual projects will require a combination of the above types, but this three-fold classification does provide a convenient basis for thinking and discussion, and that is why I have mentioned it today.

Analytical Studies

In our research work to date we have thought of analytical studies as exploratory or mapping-out projects. The purpose of an analytical study has not been to provide definite final answers, but to raise questions, to outline the field of study, to suggest relationships and emphasis and, in general, to pave the way for more detailed and specific studies of the second type.

A description of one project carried on during the past year and published in Section II of the *N. A. C. A. Bulletin* of May 15,

1946 under the title, "The Uses and Classifications of Costs," will furnish a good illustration of this type of study.

When the Association's Committee on Research was formed, one of the first problems it faced in developing a long-term research program was the need for mapping out the field of cost accounting so as to indicate its major subdivisions and to suggest the areas needing research study. This mapping-out job was undertaken by the Committee Chairman, Professor Sanders, and the Headquarters staff, and resulted in the report on cost uses and classifications to which I have referred.

Recognizing that cost accounting is not an end in itself, but a means to an end, the first step was to inquire into and to classify the uses which managements make of cost data. This led naturally into a consideration of the types of cost information needed for each of the several purposes for which costs are used, and to a consideration of the problems involved in developing the most useful cost data for each purpose. The result was an outline of the cost accounting field in terms of ultimate objectives, broken down in such a way as to indicate the areas most in need of further study. In effect, this study was an exploratory expedition designed to provide the guideposts for future, more detailed, research.

Starting with the idea that it is the ends to be served which are important, it is pointed out in the report that "Costs are used for a variety of purposes and the same costs cannot serve all purposes equally well." The report lists the following cost uses:

1. Determination of periodic income, including inventory valuation.
2. Budgetary planning.
3. Cost control.
4. Pricing policy.
5. Current application of plans and policies.

The report then discusses in detail the types of cost information needed for each of these purposes and the accounting problems involved in developing cost data of the type needed for each management purpose.

Studies of Current Cost Accounting Practice

The second type of research study which I mentioned was the study of current cost accounting practice. Most N. A. C. A.

research studies of the past have been of this type. Through the cooperation of N. A. C. A. members it has been possible to obtain through questionnaires a large enough sample of current practice in handling specific accounting problems to provide a general indication of industry practice in the area under study. Usually the replies to the qeustionnaires have indicated a considerable variance in practice without, in most cases, furnishing sufficient clue to the reasons or influences responsible for each of the different practices followed. On the theory that a practice can be properly judged or evaluated only if the reason for it is known, we have recently instituted the procedure of substituting field interviews for questionnaires and of instructing the interviewer that the reason for a particular practice is as important as the practice itself. "Always ask why" is on the way to becoming a watchword in our field research work. This is based on the feeling that if we ask enough companies how they handle a specific cost accounting problem, and also ask in each case for the underlying reason for the particular practice followed, we will find that there are several logical and acceptable methods of handling the same problem, depending on the conditions which surround each individual case.

Let me illustrate this point by an example. Company A packages its product in the process of manufacture before placing it in the finished goods warehouse, and charges the cost of packaging to production. Company B packages its product as it is prepared for shipment for the purpose of protection in shipment, and charges the cost of packaging to distribution. Company C, with its factory separate from its sales office, has no process packaging, but a small packaging cost in preparing goods for shipment. Except for this packaging, its plant is engaged wholly in manufacturing, and it follows the practice of treating all costs of the receiving and shipping departments as production costs. It argues that to attempt to segregate the minor item of packaging cost and treat it as a distribution cost would not be practical and would have no significant effect on inventory values or reported profits.

Are we going to say that the practice followed by Company C is less acceptable than the practices followed by the other two companies? I think not. Practical considerations are just as important as logic. Where the logical practice is more costly than the alternative practice and no useful purpose is served by a change, it would be foolish to base our arguments on logical grounds alone. Let us continue to remember that cost accounting is a tool of manage-

ment and not an end in itself. This is why we feel that field interviews and going behind the practices to find the reasons for them are preferable to armchair analysis in dealing with cost accounting problems. At the same time we are not discontinuing completely the use of questionnaires in studies of current practice. Once a good coverage of the field has been obtained through field interviews, questionnaires can be used to make possible a larger coverage of companies, as well as better industry and territorial coverage, than is possible using field interviews alone. Questionnaires can be designed to get the answer to "why" as well as to "how."

Costs Included in Inventories

In illustration of the current practice type of research study let me describe two studies now in process. The first of these is concerned with "Costs Included in Inventories." It is a study of current company practice in drawing the line between costs which are included in inventories (and thus deferred until the inventory is sold), and costs which are charged directly against the current period's profit and loss.

Perhaps to many of you this seems like a rather simple study, and covers an area where one would not expect to find much variation in practice. "Isn't it usual practice," you may say, "to charge all costs of production to inventories, and all costs of selling and administering the business to profit and loss?" While it is true that this is the usual practice, it is also true that when the details of company practices are studied there are amazing variations in the ways different companies classify their costs. As I have indicated previously, there is usually a reason for each variation from the usual practice, and we feel that by tabulating the various practices and the reasons for each we can throw more light on industrial accounting practice and the factors which influence it than would be possible by any other method.

Let me review briefly the area covered by this study. After two preliminary questions on the type of cost system used and the importance of inventories to the company, we have a group of questions dealing with the dividing line between production costs and distribution costs. These questions relate to costs arising from packaging, shipping, warehousing finished products, transportation of products to field warehouses, research, field engineering, royalties, and the operation of various departments or activities which service both the manufacturing and sales branches of the

business. These are followed by a similar group of questions with reference to the dividing line between production and administration. Finally, there is a group of questions dealing with the accounting treatment of unabsorbed costs and losses, such as unabsorbed overhead, variances from standard costs, inventory write-down, etc. In each case where the company practice seems to vary in any way from the practice which is general or accepted, the interviewer is instructed to discuss the practice and to determine, if possible, the underlying reason for the particular practice followed.

Accounting literature over the years has been replete with discussions of inventory valuation—cost or market, whichever is lower; lifo; fifo; base stock; etc., but equal consideration has not been given to what elements of cost are properly included in inventory values. It is my feeling that the variations in inventory valuations arising from varying classifications of costs are at least as significant as the variations arising from the various methods of pricing the inventory. In view of the growing trend toward cost as the primary basis for inventory valuation, it is important that cost accountants give more than usual attention to what is included in cost for inventory valuation purposes.

Uses of Standard Costs

As another illustration of the current practice type of research study I shall describe a second study of this type now in process. This is a study of company practice with respect to the uses of standard costs for material and labor. Field interviews conducted to date indicate that the purposes for which companies use standard costs vary considerably from company to company. Some companies use standards primarily as a basis for control of costs, without taking advantage of their potentials for inventory valuation, budgeting, and pricing. Other companies stress one or the other of the five uses of costs previously mentioned. In addition to inquiring into the uses made of standards by each company, we are concerned with determining whether in practice the same standards serve all purposes equally well, and if not, the nature of the changes in standards necessary to adapt them to uses other than the one for which they were specifically developed. Out of this study we hope to get a better understanding of the usefulness of standard costs for each of the purposes for which cost data are used by management.

One of the interesting points which has developed out of this study arises as a result of the recent increases in labor rates. In the case of two companies which have piece-rate and incentive methods of wage payments, the employees have recently been granted increases stated in cents per hour. You can appreciate the problem of revising labor standards stated in terms of units of production to include cent-per-hour increases. Neither of the companies revised its labor standards. One company solved the problem by including the cent-per-hour wage increase in departmental overhead accounts, and increasing overhead rate accordingly. The other has taken no action, but has continued to value its production at the old standard with the result that the rate increase has been carried to a variance account and the inventories are valued at considerably less than current actual cost.

Undoubtedly a similar situation exists in many other companies. Increases in material costs and labor rates are going to mean that many companies with standard costs will find themselves faced with the need for revising standards upward at the end of the year. This raises the interesting question as to whether inventories on hand at the end of the year should be written up to the new standards, and the further question of the disposition of the credit thus created. Because in the past the year-end adjustment of inventories to new standards has usually resulted in a write-down, there is little precedent to follow.

Studies of Current Problems

The third type of research project to which I referred was the factual study of current accounting problems. In a rapidly changing economy, new problems and the need for new emphasis on old problems are likely to emerge overnight. Many of these problems arise out of the relation of government to business, and involve interpretations of rules and regulations and their effect on accounting methods and procedures. The larger, better staffed companies are in a position to deal with these problems as they arise, but to the small and medium-sized companies they present difficult hurdles. Much unnecessary effort is expended if each company must tackle the problem on its own. Considerable effort and confusion can be saved by making available to these companies as soon as possible after the emergence of a new problem a report of solutions developed by the leaders in the field, or an analysis of the problem and a discussion of possible solutions. You will note that

I have referred to "a discussion of possible solutions" rather than "the solution." Most of these problems are too complex to permit of simple solution or of the same solution for all companies. Usually some experience is needed before the final pattern emerges. That is why we feel that a discussion of possible solutions is the most helpful way of dealing with a new problem as it emerges.

To illustrate this type of research study, I mention a series of three related reports on the problems arising from tax amortization of emergency facilities. I am sure you are all familiar with the provision of the tax law which permitted companies which acquired facilities under certificates of necessity to amortize the cost of these facilities for tax purposes over a period of five years, or the period of the war emergency, if shorter. In the case where the period of war use of the facility was less than five years, so that the amortization was to be spread over a shorter period, the amortization was said to be accelerated.

The first of the studies in this series dealt with "Accelerated Amortization Under Certificates of Non-Necessity" and resulted in a report published in Section II of the *N. A. C. A. Bulletin* of June 1, 1945. It dealt largely with the tax phases of the problem and called to the attention of accountants the various options permitted by the law with respect to the acceleration of amortization and the effect of acceleration on tax liabilities and renegotiation claims of the Government. The object was to provide the accountants of each company with the information they would need in advising management on this problem.

The second study in this series was concerned with the "Accounting Problems Arising from Tax Amortization of Emergency Facilities" and resulted in a report issued as Section II of the *Bulletin* of January 1 of this year. Whereas the first study dealt primarily with the tax aspects of accelerated amortization, this study dealt with the accounting aspects. The report outlined the problem, listed five alternative solutions, and discussed the arguments which had been advanced for and against each solution. Events since the issuance of this report have indicated the wisdom of avoiding a statement of opinion as to the preferable solution of the problem. Different conditions in different companies have led to the adoption of different solutions.

The third in this series of reports was published as Section III of the *N. A. C. A. Bulletin* for November 15, 1946. This was a factual report of the practices followed by American companies

based on a study of their annual reports for 1945, entitled "Post-war Practice in Accounting for Emergency Facilities." Taken in conjunction with the preceding report it indicated the extent to which these companies have adopted each of the possible solutions outlined in the first report. It also provided an historical record of practice in this area, which will have significance in future research work involving the entire field of spreading the cost of fixed assets over periods of time and units of production.

Summary

In closing, let me summarize briefly the direction in which our present research program is leading. While endeavoring to provide help for accountants in solving current problems, we have made a start on a broad program of mapping out the cost accounting field to indicate the broad objectives or uses of cost accounting, to suggest the types of cost data needed for these various purposes, and to point out the problems involved in developing these costs. Hand in hand with the mapping-out process, we are proceeding to study company accounting practice in dealing with each of these problems, and particularily to determine the causes, influences, or factors responsible for varying practices being followed by different companies. By spreading the results of these studies on the record through publication, it is felt that American accountants will be provided with the data they need for improving industrial accounting practice.

DEPRECIATION ACCOUNTING

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DEPRECIATION accounting is something everyone knows about but few understand. There are various definitions of depreciation but upon close examination they appear to be contradictory in some respects. The American Institute of Accountants, through its committee on terminology, has attempted to formulate an acceptable definition. In October, 1942* this committee issued a Research Bulletin which was for the most part a discussion of the nature of depreciation, and over a year later, in November, 1943** issued another bulletin containing a definition. In addition to the definition, this bulletin says, "Much of the confusion and many of the misapprehensions that have arisen in respect of depreciation accounting would, as the committee's report of last year suggested, be obviated by the substitution of some such word as 'amortization' for 'depreciation.' The use of the latter word to describe a fall in value is so widespread and so well justified by the root meaning of the word that it is unreasonable to expect that the technical accounting use of it will result in the complete abandonment of the use of the word in the popular sense, even in accounting." The committee suggests for adoption by the committee on accounting procedure the following definition:

"Depreciation accounting is a system of accounting which aims to distribute the cost or other basic value of tangible capital assets over the estimated useful life of the unit (which may be a group of assets) in a systematic and rational manner. It is a process of allocation, not of valuation. Depreciation for the year is the portion of the total charge under such a system that is allocated to the year. Although the allocation may properly take into account occurrences during the year, it is not intended to be a measurement of the effect of all such occurrences." This definition is followed by a note which states, "The words depreciate and depreciation are used in various ways in connection with depreciation accounting. The verb is used in a transitive as well as in an intran-

* Accounting Research Bulletin No. 16.
** Accounting Research Bulletin No. 20.

sitive sense (cf., the use of accrue in accrual accounting); the noun is used to describe not only the process but also a charge resulting from the process or the accumulated balance of such charges. It is also used to describe the exhaustion of life which gives rise to the method of accounting. In all these uses, the meaning of the word is sharply distinguished from the sense of "fall in value" in which the word is employed in common usage and in respect of some assets (e.g., marketable securities) in accounting."

Definitions

In the earlier report* a number of definitions were cited:

1. Webster's New International Dictionary (1940): "Depreciation charge: (Accounting). An annual charge to cover depreciation and obsolescence, usually in the form of a percentage, fixed in advance, of the cost of the property depreciated."
2. United States Supreme Court, in Lindheimer v. Illinois Bell Telephone Company, 292 U. S. 151 (1934): "Broadly speaking, depreciation is the loss, not restored by current maintenance, which is due to all the factors causing the ultimate retirement of the property. These factors embrace wear and tear, decay, inadequacy, and obsolescence. Annual depreciation is the loss which takes place in a year."
3. National Association of Railroad and Utilities Commissioners, Report of Special Committee on Depreciation, Depreciation Principles and Methods (1938), pp. 8-10: ". . . depreciation, as applied to depreciable utility plant, means the loss in service value not restored by current maintenance, incurred in connection with the consumption or prospective retirement of utility plant in the course of service from causes which are known to be in current operation and against which the utility is not protected by insurance. Among the causes to be given consideration are wear and tear, decay, action of the elements, inadequacy, obsolescence, changes in the art, changes in demand and requirements of public authorities, and, in some cases, the exhaustion of natural resources."

* Accounting Research Bulletin No. 16.

4. U. S. Treasury Department, Bureau of Internal Revenue. Regulations 103 (now 111), Income Tax, Internal Revenue Code (1940): "Sec. 19.23(1)-1 Depreciation. A reasonable allowance for the exhaustion, wear and tear, and obsolescence of property used in trade or business may be deducted from gross income. For convenience such an allowance will usually be referred to as depreciation, excluding from the term any idea of a mere reduction in market value not resulting from exhaustion, wear and tear, or obsolescence. The proper allowance for such depreciation of any property used in trade or business is that amount which should be set aside for the taxable year in accordance with a reasonably consistent plan (not necessarily at a uniform rate) whereby the aggregate of the amounts so set aside plus the salvage value, will, at the end of the useful life of the property in the business, equal the cost or other basis of the property determined in accordance with Section 113. Due regard must also be given to expenditures for current upkeep."

5. Robert H. Montgomery, Auditing Theory and Practice (1940), p. 477: "To accountants fixed assets represent an investment in physical property, the cost of which, less salvage, must be charged to operations over the period of the useful life of the property. Hence, fixed assets are really in the nature of special deferred charges of relatively long service life, the absorption of which is called by the distinctive name 'depreciation'."

6. W. A. Paton, Essentials of Accounting (1938), p. 530: "'Depreciation' has come to be used particularly to designate the expiration of the cost or value of buildings and equipment in the course of business operation."

7. Dawson's Accountants' Compendium, London (1930), p. 174: "Depreciation: The term is used in accountancy to represent the shrinkage in cost price or value of any particular property, buildings, machinery, plant, etc., (1) arising from wear, tear, and breakage as a consequence of its employment in trading or for manufacturing purposes; (2) by mere effluxion of time; (3) by becoming unsuitable for the required purpose whether from obsolescence or otherwise; or (4) from any other cause."

Physical vs. Accounting Depreciation

To these could be added many more but practically all of them seem to indicate that depreciation is definitely concerned with the exhaustion, wear and tear, and obsolescence of physical property. Obviously, the value of property decreases with use but only in rare instances does accounting depreciation coincide with actual depreciation. Depreciation accounting is but a part of accrual accounting which is based upon the theory that all income and expense must be related to time as measured by fiscal periods. The American Institute definition makes this very clear. "It is a process of allocation, not of valuation." The fixed assets as they appear on the balance sheet are not stated at present value; they are stated at cost or other basis, less the amounts which have been allocated to cost of operation over the assumed useful life of the assets. In practically every plant there are fully depreciated assets in use and under conditions as they are today these assets are priceless, since they cannot readily be replaced. They may be inefficient in operation but they are nevertheless of great value in use, and other companies would pay a good price for them.

Under the stress of war and the urgent necessity for production at any cost, land, buildings, and equipment were purchased under a kind of contract with the government, providing that the cost of such facilities might be charged against the cost of war production during the period of the emergency. Recent studies have revealed that there was no uniform accounting treatment of this charge-off, which was called amortization and generally treated as depreciation. The result is that many companies now have useful assets which have no book value, or cost, which may be charged against current operations. It was assumed in many cases that because the law allowed what amounted to a complete write-off, accounting principles must, of necessity, be stretched out of shape to reflect the provisions of the law. In accounting for wartime facilities we were misled into thinking that amortization over a period obviously shorter than the useful life of the assets was the equivalent of accounting depreciation as we had always used that term. To add further confusion, the cost of land was included in the amortization allowed for tax purposes, yet no accountant in his right mind would think of applying depreciation to the cost of land.

Amortization of War Facilities

The law may have been necessary and probably was good in theory, in so far as it provided for government payment for facilities needed for war production, but it was very badly bungled in practice. The same results might have been achieved if the certificates of necessity covered the cost of emergency facilities, less normal depreciation, and the necessary tax adjustment made by an addition to the excess-profits credit, with an additional credit for normal tax and surtax. The damage was done by attempting to use the technique of depreciation accounting without regard to useful life, which is an integral part of depreciation accounting.

Restoration to Books of Cost-Free Assets

At the present time and as a result of this tampering there is a lively discussion as to what to do accountingwise with these accounting white elephants, which have no remaining cost basis taxwise, when they have been written off the books as well. Should they be restored to the books at cost less normal depreciation, or at appraised value, or should they be forgotten entirely on the theory that the cost has been fully recovered? If the American Institute definition had been followed in the first place there would be no question of restoration. Unfortunately, the depreciation aspect of emergency facilities is not the only problem. If we must accept the depreciation concept and even if normal depreciation only had been charged on the books, there would still be the question of necessary adjustments to surplus and adequate explanations on the balance sheet and income statement.

Let us assume that a corporation had no surplus at the beginning of the year, and this assumption is for purposes of simplification only. The net income for the year was $100,000 after charging normal depreciation, but the amortization in excess of normal depreciation was also $100,000, leaving a zero balance again in surplus at the end of the year and no tax liability, since there was no taxable income. If the assets are now to be restored at cost less normal depreciation, then it seems obvious that surplus must also be restored. If surplus is restored is there any surplus available for dividends? If the board of directors should declare a dividend out of this surplus what is the nature of that dividend? Is there any justification for declaring such a dividend? Taxwise, the full cost of the physical plant has been completely charged off.

Actually the corporation has physical plant which is probably worth the full amount which has been restored or, more likely, worth considerably more in an economy of exaggerated scarcity and rising prices. These questions will remain during the useful life of these assets and adequate explanations will be necessary in the preparation of all financial statements during that time. I am not going to attempt to give a definite answer. My only purpose is to point out the pitfalls which beset our paths in the wake of wartime dislocations. The difficulty, of course, is that accounting is a series of man-made conventions not based upon natural laws and we have inadvertently made hash of some of those conventions.

Mr. Justice Jackson, in a dissenting opinion in the Hope Natural Gas case, warned of the danger of the use in accounting of "symbols of certainty to express values that are actually in constant flux." He also said "our quest for certitude is so ardent that we pay irrational reverence to a technique which uses symbols of certainty, even though experience again and again warns us that they are elusive." This warning applies equally to the indiscriminate use of words which have a technical meaning in accounting and a different meaning in everyday usage.

The American Institute Committee has suggested that the confusion arises from the unfortunate use of a word which has a generally accepted meaning more inclusive than necessary for accounting purposes. Depreciation, in an accounting sense, is a form of amortization of the cost of physical assets over their useful life, but here again, the word "amortization" is not exactly the right one since it has a different use in accounting. If you will study the above definitions carefully you will see that emphasis is placed upon wear and tear, and the gradual deterioration of physical property. The Treasury Department says, "A reasonable allowance for the exhaustion, wear and tear, and obsolescence of property used in trade or business . . . will usually be referred to as depreciation, excluding from the term any idea of a mere reduction in market value not resulting from exhaustion, wear and tear, or obsolescence." The American Institute definition says "Depreciation accounting aims to distribute the cost or other basic value of 'tangible capital assets' over the estimated useful life of the unit." It goes on to say, however, that "It is a process of allocation, not of valuation." The useful life of the property is the basis of allocation and this is true not only of original cost but of replacement and restoration which adds to the useful life.

Maintenance vs. Restoration

The line between maintenance and restoration is often a very fine one. In some industries there are costly items of equipment which may be considered at the time of purchase as a single unit, where the basic parts are practically indestructible but where the accessory parts are of comparatively short life. The cost of replacement of these parts may be ordinary maintenance but the cost of replacement of a vital group of parts might well add to the useful life of the unit as a whole.

Within the past year buildings erected for war production have been sold to new owners for normal production. Here there are innumerable problems which must be solved before satisfactory depreciation schedules can be established. In many cases the buildings, electrical wiring, generators, boilers, heating and water systems have been acquired as a unit. Temporary partitions and other appurtenances obstruct areas which must be cleared or rearranged, motors must be rewired, lighting fixtures must be changed, cleaning and painting is necessary, and the entire building must be made suitable for its new occupants. How much of this cost is chargeable to moving expense? What is the cost which must be recovered over the useful life of the property? Is there any allowable loss in the removal of useless parts of the building or its equipment? May the cost of the entire property be allocated on an appraisal basis in order to establish proper rates of depreciation on the component parts?

In one case which has come to my attention the company charged all costs in connection with moving and rehabilitation to a single account. These costs were incurred over a period of several months and all invoices were kept in a separate file for further analysis. At least 75 per cent of the charges probably can be classified without too much difficulty but the remaining 25 per cent will necessarily be subject to careful review and final disposition, and even then it is doubtful whether or not the company and the Treasury Department will agree in all cases. The Treasury Regulations, Sec. 29.23(a)-4 state very clearly that "The cost of incidental repairs which neither materially add to the value of the property nor appreciably prolong its life, but keep it in an ordinarily efficient operating condition, may be deducted as expense." The same regulation provides that "Any expenditure (other than ordinary repairs) made to restore the property or pro-

long its useful life should be added to the property account or charged against the appropriate reserve and not to current operations." In the latest edition of Montgomery's Federal Taxes on Corporations 1945-46, p. 732, he says, "The Treasury often interprets the Code (section 24(a)(2) as if the words 'made to increase the value of any property' were not included. Alterations to be capitalized must (a) increase the value of the property, or (b) restore depreciable property. In all other cases the expenditures should be deducted as necessary expenses. If alterations and improvements do not increase the value of the property, the expenditures need not be capitalized." The words of the Code and the regulations are reasonably clear and exact, but in actual practice depreciation accounting is a shadow land where few of us can travel in safety.

Depreciation Rates

On August 30 the Treasury issued a special ruling in connection with depreciation on rental housing which appears to have been inspired by Wilson W. Wyatt, until recently Administrator of the National Housing Agency. The ruling approves a limited use of the method of depreciation on diminishing values to the extent of 150 per cent of the straight line rate. This is not a new ruling since the Treasury has always paid lip service to this method without the specific limitation. It is complicated and in this instance will make very little practical difference to landlords, since it deals with assets having a comparatively long life and the example given is that of increasing a straight-line rate of 2.5 per cent to 3.75 per cent and applying the increased rate to the diminishing balance. The practical value of this ruling seems to be very slight and the best that can be said for it is that it will not appreciably distort any generally accepted accounting principles.

The same cannot be said for another recent proposal which has not progressed beyond the speculative stage, and that is the allowance of high rates of depreciation in the early years in the case of new equipment. The theory is that such a policy would encourage the acquisition of new and badly needed facilities for postwar production. This would be a kind of bonus and would probably result in the same sort of confusion as that we now face with respect to wartime emergency facilities. If such a policy were to be adopted, I see no reason why it should be used as a basis for further distortion of accounting principles, leaving out of consideration any

effect it might have on the general price level. If the excess of amortization over normal depreciation had been used as a tax credit, those companies continuing to charge depreciation over the useful life of the assets would, in effect, be allowed a bonus in the form of a double write-off. It is undoubtedly true that actual depreciation is much higher in the first years of use, but accounting depreciation seems to be fairly well established as a charge in relation to time as measured by useful life of the property without regard to actual decline in values. There is no valid reason why two or more companies should charge depreciation at the same rate on identical equipment if we are to consider the effect of actual depreciation. Some people have a remarkable faculty for getting things out of order and others can use the same kind of device for years without any difficulty and little, if any, maintenance cost. This is equally true of entire plants, and depreciation accounting is sufficiently involved now without injecting the elements of skill of operators and the efficiency or bungling of the maintenance department.

Depreciation and Accrual Accounting

I have said before that depreciation accounting is but a part of accrual accounting. Many of us delight in finding what we think are more accurate ways of distributing manufacturing expenses, which include charges for depreciation. The distribution of these expenses in accrual accounting and in cost accounting presents two separate problems. In accrual accounting we are concerned only with the time element. True accrual accounting aims to allocate all costs to the fiscal period. Cost accounting aims to allocate all costs to production, either by units of production or to production as a whole. This discussion is confined to the accrual aspects of accounting only and on the basis of what has been said we should be able to construct a definition of depreciation accounting which is reasonably inclusive, as follows:

> Depreciation accounting is a process of allocating the cost or other basis of those physical assets which are necessary in the conduct of a business over their useful life in all cases where the useful life exceeds one fiscal period.

To be useful a definition should be as definite as possible and should not be invalidated by negative exceptions and explanations.

We are concerned here with two elements, cost and time, and we are translating dollars into time. The business may consist of nothing but collecting rent, and even in cases where it is the manufacture and sale of a product the prime purpose is the production of income, or at least the intention or hope of producing income. In so far as depreciation accounting is concerned it makes little difference whether or not we do produce income. If that is the reason for acquiring the property then we are entitled to compute the depreciation charge as an allocation of the cost over the time when it might reasonably be expected that the property will be useful for such purposes.

Fixed and Variable Expenses

"Expenses are considered as (a) fixed or (b) variable; but as to fixed expenses it should be noted that they are usually fixed in a relative sense only. . . . An absolutely fixed expense does not vary with changing plant size. Few, if any, examples of such expense exist. Most so-called fixed expenses vary more or less in proportion to size of plant. Illustrations are interest and depreciation. It appears that most "fixed" expenses do not vary proportionately with plant size but, in one way or another, in some relation thereto.

"Perhaps the word 'fixed' is a misnomer, because practically all 'fixed' expenses vary in some way or other with varying plant size, but not usually exactly in proportion to varying plant size.

"The so-called variable expenses vary with production, but not necessarily in proportion to production. In summary, it is perhaps nearly correct to say that all expenses are variable, but that one group varies with plant size, the other group with production."

Earl A. Saliers, "Differential Costs," in The New York Certified Public Accountant, *December 1946.*

TEAMWORK—ACCOUNTING AND MANAGEMENT

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THIS is a case study which reviews accounting progress in a medium-sized paper converting plant during the last seven years. To be recognized by management and become part of it, cost accountants must prove and sell the value of their methods. We can be of maximum assistance to management, even though the allowance for accounting costs is low. Management will invest in good accounting, and we accountants can become important members of the business team if we have "something on the ball." It has been said that a big shot is only a little shot who kept on shooting. Sound progress is generally a slow process.

Let us begin with a situation such as we had seven years ago:

1. The cost system was of the slow moving job cost variety which was not tied in with the books.
2. Management had no confidence in unit cost data.
3. Nearly all major decisions were made on the basis of discussions, except that sometimes outside engineers were employed to try to determine facts. Their conclusions were frequently misleading due to lack of correct basic data. The cost accountant was too seldom a factor in making decisions. Therefore, he could not serve management well without knowledge of the reasoning that went on in their minds.
4. Much accounting work consisted of lengthy analyses and attempted explanations of past figures. This work produced little of constructive value.

It was obvious that the cost accountant's first job was to establish reliable cost data and good accounting controls. His second and more important job was to sell himself and his data to management.

Standard Costs

The first step was to install a standard cost system. The most important result obtained from it was that management soon began to rely on data obtained from the cost department. They

realized that unit cost figures actually tied in with the total operation costs for each mill. A simple way to convince them of this fact was to show that when all units produced were multiplied by product standard factory costs, the total equalled the actual total factory cost, except for variations.

To convince the foremen and other operating men below top management, we showed them that we had averaged their past performances and given them a hand in setting standards. We could then say convincingly, "Boys, here is your past performance; let's see you improve upon it." At this point, we might be criticized for not establishing operation standards by engineering methods—time and motion study. To do this takes considerable time and the expense does not seem warranted. Quality is of paramount importance, as cost of waste could easily approximate the amount of the direct labor payroll. We must get increased output by efficient equipment and good supervision.

The second step was to make use of comparisons between standard and actual costs for purposes of control. The items in order of their importance were (1) progress in reduction of waste, (2) use and costs of adhesives, and (3) operation efficiencies.

Waste

A weekly report on completed production orders is made, showing waste losses compared with standards. These figures form the basis upon which waste bonuses are paid when performance approaches or betters standard. Comparative schedules are also made periodically. A weekly report is made available to all factory operators, while the summaries are for use of top management and factory management. The following example shows the columnar headings of such a weekly report:

1. Production order number.
2. Date started and finished.
3. Description.
4. Total cost.
5. Factory cost.
6. Waste per cent, actual and standard.
7. Waste loss value, actual and standard.
8. Per cent waste, gain or loss.
9. Value.

Use of Adhesives

A daily posting schedule compares standard and actual quantities. These figures are given to the laboratory and operating men who are primarily held responsible. A summary sheet at the end of each four-week period shows variations in dollars, as well as in pounds. The dollar variation is made up of a usage variation, price variation, and substitutions and changes in formulas. The summary sheet shows actual and standard use of adhesives in pounds by production units and breaks the variance down into amounts attributable to material prices, substitutions, and usage.

Operating Efficiencies

To show the operating man the comparative results of his efforts, we make daily reports of our principal departments by shifts, men, and products run, of actual performance, as compared with standards. Variations are shown on a daily report to the works manager and responsible foremen. The information contained in these reports in two of our departments follows:

Gumming Dept.	Guarantee Dept.
1. Operator.	1. Operator.
2. Machine number.	2. Production order.
3. Production order number.	3. Stock.
4. Stock.	4. Width.
5. Width.	5. Pounds.
6. Gum.	6. Actual time each job.
7. Rolls.	7. Total actual time.
8. Pounds.	8. Allowed time, each job.
9. Yards or pounds run—actual.	9. Total allowed time.
10. Yards or pounds per hour—actual and standard.	
11. Standard hours.	
12. Actual hours.	

Each four-week period a report is made which shows standard and actual labor in money and hours, and rate and output variations from standard. This report also shows indirect labor for each cost center. Column headings of this report follow:

1. Department or cost center.
2. Current year volume basis.
3. Standard cost rate per hour or quantity.

4. Indirect labor dollars and per cent to direct labor.
5. Standard hours or quantity.
6. Actual hours or quantity.
7. Actual payroll.
8. Actual hours or quantity at standard rate.
9. Standard hours or quantity at standard rate.
10. Rate variance.
11. Time variance.
12. Total variance.
13. Ratio.

In the periodic reports which go to top management comparisons are also made from time to time with past performance. Other reports which go to management include cost of overtime and expenditures for repairs and maintenance. We have over a period of seven years, without any incentive pay, increased output on our major equipment 10 to 15 per cent.

Effective Controls

The accountant's second major job was to develop effective planning, inventory, and purchasing controls. We found that many of our cost variations were caused by poor, or no, planning. There were considerable interruptions in the production schedule which could be avoided if we improved our system. In purchasing, the objective is to receive the right kind of material at the right time, and at the right price. Maximum and minimum quantities and individual material requisitions were tried and discarded. Periodic sheets weekly, biweekly, or monthly, depending on needs, were developed with good results. These sheets covered four principal materials: kraft papers, white flat papers, cloth, and adhesive materials. They contained the following information:

1. Kraft papers.
   a. Orders received.
   b. Unshipped orders—gummed weight.
   c. Less jumbo roll inventory—gummed weight.
   d. Needed or available for orders.
   e. Equivalent raw pounds or available.
   f. On hand—raw material.
   g. Needed or available.
   h. Expected or received.
   i. Normal inventory.

j. Need or available for orders.
k. Less raw stock on order.
l. Need to order or available.
m. Consumption—year to date.

2. White flat papers.
a. Unshipped orders—reams.
b. Stock on hand—reams.
c. Stock in gummed jumbo reams.
d. Stock in process.
e. Number of reams needed to gum.
f. Equivalent raw stock to gum.
g. Raw stock on hand.
h. Normal inventory.
i. Raw stock needed or available.
j. Raw stock on order.
k. Raw stock—need to order.
l. Raw stock available.

3. Cloth report.
a. Kind.
b. Jumbo roll.
c. Special grey.
d. Grey unspecified.
e. Total available.
f. Grey goods delivered.
g. Weeks available.
h. Unfilled orders.
i. Normal inventory.
j. Weeks available.
k. Long position above orders.
l. Grey available.
m. Finished cloth and special grey in excess of orders.
n. Total long.
o. Weeks available.
p. Moving eight weeks' consumption.
q. Yards shipped—year to date.
r. Yards bought—year to date.

4. Adhesive materials.
a. Kind.
b. Amount on hand.

c. Amount on order.
d. Total available.
e. Normal position.
f. Consumption for week ending——.
g. Consumption for year to date.

The headings in the examples explain their use. It is to be particularly noted that inventory control is arrived at by a column called "normal inventory". These figures may be revised from time to time, depending upon sales volume. The calculated advantages of low inventories, smaller financial investment and fewer obsolescence losses, must be compared with the intangible advantage of higher inventories which result in better service to customers.

Planning must also be related to available factory time. Thus, with the use of standards of output, unfilled orders were converted to labor and machine time. The sales department was kept informed daily of the available amount of products that could be sold for future delivery. Actual performance in the factory is frequently compared with standard performance and necessary adjustments are followed through.

Improvements in Procedures

The benefits derived from the standard cost methods and improvement in scheduling convinced management that constructive accounting enabled them to run the business better, and the department was no longer considered a necessary burden. Along with this work, improved presentation of our profit and loss statement, balance sheet, and general accounting records was developed. Trial balance figures were so arranged as to become our supporting schedules. Studies were made to simplify, by means of one writing, such work as accounts receivable, accounts payable, purchase order, payroll accounting, and inventory records. These experiments resulted in "no posting" accounts receivable, a payable system which omitted both the voucher register and detailed cash book, and also many other time savers. Clerical time was thus available for continued work on how we could better serve management.

Planning Ahead

The type of data and reporting as explained above, while they were very helpful to management, left much undone. What about

the future? Management still looked upon the cost accountant as a historian and a person from whom facts could be obtained if needed.

With this thought in mind an executive advisory committee was formed this year. The group meets once a month, or more often, as conditions arise, and serves as a sounding board for ideas on policy and solutions to business problems. The cost accountant (now given the title of controller) has the major function of directing studies to obtain greater income and decreased costs, prior to management decision. Management will act after receiving factual data from the controller's department. This plan works well because it is based on the idea of accounting service to management. We try to present facts and leave the managing to management.

The effectiveness of any report is directly proportionate to how well it is sold. A few simple and timely reports which are used are worth more than many lengthy ones which get no action. Therefore, much of our reporting is of a special nature, arising from problems which confront the sales manager, factory manager, or laboratory. A combination of management experience together with estimates of results under various conditions form the basis of wise decisions. The controller forecasts results of new conditions which arise and suggests alternate courses and probable effect. When a special report is made, therefore, it receives just consideration because it is definitely wanted.

Sales Budget

We therefore approach each problem with the "what-would-be-the-results-if" viewpoint. Each problem is reduced to a mathematical one. We begin with the sales budget which sets out gross margin on each product in dollars and per cent and covers the quantity which can be completed in a month as well as equipment time which will be consumed, and other factors.

The controller obtains all statistical data necessary as to available materials from the purchasing department. From past performance analysis he determines profitability by lines of products and by salesmen. From our cost records data on profitability, not only as to percentage of sales but by machine hours and by use of critical materials, are developed. Several desired sales budgets showing expected results under alternate courses of procedure are presented. These budgets introduce possibilities, such as increases

in costs of labor and material, influence of additional volume, and various patterns of products sold, sometimes known as "mixes."

Each member of the advisory committee is given these data to study; and while the sales manager is primarily responsible for the sales budget, he is given much assistance by suggestions from the members. The immediate best picture has to be tempered with that which may be best in the long run. The sales budget is set up over a period of a year, and is revised quarterly. Actual results are compared for each four-week period with the budget.

Sales Analysis

The sales department wanted to know how well they were meeting the budget before it was possible to tabulate the actual sales. We therefore costed incoming orders daily and cumulatively for each four-week period. This report shows sales, factory cost, and profitability by lines of products. Through the use of the sales budget there is better direction of salesmen's activities, customers are happier because we are not committed beyond our capacity to produce, and the factory knows just where it stands.

The concept now in the sales manager's mind is "How can we derive the greatest gross margin?" instead of "How can we achieve the greatest dollar volume?" We are merely helping him to get the results he wants. Actual sales analysis follows within eight days of the close of the four-week period. With this the sales manager can compare the effectiveness of each salesman as well as that of the company as a whole. Special features of the analysis are display of freight prepaid and allowed, cost of sales and gross margin, as well as of sales in quantity and value.

Efforts to Reduce Cost

A different approach from the customary one of measuring past performance against standard was conceived. It was believed that if we set definite problems and assignments to various departments or individuals wherever there was an opportunity to save money, we could get somewhere. The best place to obtain savings is where most money is spent. No one had ever questioned the work of the laboratory. Why not challenge it? There were two places where money could be saved:

1. Quantitative usage. Overemphasis had been placed on quality and operators were using more adhesive than was required to make a satisfactory product.

2. Change in formulas. In order to avoid complaints on quality, a form was used to get necessary approvals from the sales department and the head of the manufacturing department.

A report was required each four weeks from the laboratory man assigned to this job. This report showed reasons for changes and explanations of his progress. During the course of four months remarkable results have been obtained. It is believed that before the subject has been exhausted savings of 10 per cent will have been realized.

Maintenance

In the past we have tried to set up a budget for repairs and maintenance expenditures, but found that these expenditures were usually used up long before the year ended, with the result that the budget was exceeded because certain expenses later in the year were absolutely necessary. We now have, in addition to the budget, a system of advance approval on new equipment, major repairs, and maintenance items. It has been interesting to note that many items of large expense have been avoided or held up until additional data were obtained. An authorization form is used (Exhibit 1) which requires approval, but only on the basis of complete information set forth in the form itself.

AUTHORIZATION FOR NEW EQUIPMENT AND MAJOR REPAIRS.

Issued by ..... Date..... No.....
1. Description of job.....
2. Reasons—savings to be effected, cause of breakdown, etc. .....
3. Old equipment to be replaced.....
4. Estimated cost.....
5. Estimated useful life.....
6. Estimated time to complete.....
Date begun..... Date completed .....
Estimates prepared by..... Approved by .....
Account No..... Authorized by .....

EXHIBIT 1

Conclusion

In conclusion, I would like to emphasize three important "musts" to make the accountant's job a vital part of management:

1. Install a reliable cost and accounting system.
2. Improve planning and have advance budgets.
3. Sell the need of your work; give management something that will help the whole business team.

Many of us have seen carefully laid plans discarded because the plan was not properly worked. The human failings of resistance to criticism and to changes must be recognized. From the sweeper to the president, the employee's greatest concern is "how will this affect me personally?" Too much emphasis cannot be placed on ways and means of selling your plan and services. If you can convince each one concerned that good cost accounting will really help him, give him a better standard of living and more security, you will find the stone wall of resistance crumbling and changing to a stairway of assistance. Fears must be overcome by complete explanation of purpose. Actions and policies of justice count most. That takes time. Invite comments, and consider them thoroughly. Get people coming to you with suggestions.